

PROJECT NUMBER: 1708
PROJECT TITLE: Physical Chemistry and Process Monitoring
PROJECT LEADER: J. L. Banyasz
PERIOD COVERED: October, 1988

I. OPERATIONS SUPPORT (J. Crump and A. Closter, in collaboration with the Applied Technology Group)

- A. Objective: Determine the effect of particle size distribution on dynamic viscosity changes that occur in PVA tipping adhesives.
- B. Results: The roller speed study continues. A memo detailing the results to date has been issued.

Work has been initiated on the fabrication of rollers of varying hardnesses. The test rollers will be used to determine whether particle size degradation can be reduced by going to a softer roller.

II. OPERATIONS SUPPORT (P. Henderson, in collaboration with the Applied Technology Group)

- A. Objective: Characterization of inks.
- B. Results: Contact was established with Weber and Permut, Inc., an ink consulting firm, in order to obtain assistance with the standardization of inks and the establishment of quality control criteria.

III. OPERATIONS SUPPORT (S. Ganeriwala)

- A. Objective: Assess the effectiveness of adhesives used in overtipping.
- B. Results: At the request of W. G. Sanderson, peel tests were performed with the Dynastat to rank three adhesives used in overtipping. Nine adhesive-tipping paper combinations were tested. In none of these cases was there bond failure due to the breakage of the glue. Failure in all cases was due either to paper delamination at the adhesive interface or tensile failure of the paper itself. A memo summarizing the results was issued.
- C. Plans: No further work is planned.

IV. MENTHOL STUDIES (D. Driscoll)

- A. Objective: Determine the diffusion coefficient of menthol in cellulose acetate (CA).
- B. Results: Experiments to determine the permeability of CA films with respect to menthol have been initiated. The permeability of

unplasticized CA films at room temperature was found to be negligible while a slight, but measurable, permeation rate was observed at 40°C. The results to date indicate minimal mobility for menthol in unplasticized CA.

C Plans:: This work is ongoing.